ENCODING SCHEME FOR PRODUCING MAGNETIC FIELD SIGNALS HAVING DESIRED SPECTRAL CHARACTERISTICS

ABSTRACT OF THE DISCLOSURE

Methods and systems for producing an encoded information signal having attenuated low frequency spectral components and a substantially constant average energy. An M bit code word is produced for each N bits of an information signal according to the following conditions: (a) each code word includes an equal number of logic zero bits and logic one bits; (b) each code word includes no more than two consecutive identical bits; and (c) M is greater than N. For example, M equals eight and N equals four. Such an encoded information signal is especially useful for generating a magnetic field signal usable for locating an underground object. This is in part because information sidebands of the magnetic field signal to have desired spectral characteristics that are useful in environments that often include harmonically derived interference signals at regular 50 Hz (± 0.1 Hz) or 60 Hz (± 0.1 Hz) intervals caused by power lines.

7/31/01

A288-63.wpd